

Creating animation and interactivity with Flash

This document is an introductory guide to creating web-based content using Macromedia Flash. Flash allows for the creation of animated and interactive objects that do not require complex programming. This document covers the basics of creating and modifying objects, creating animation, adding action buttons to develop interactivity and publishing movies.



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Conventions:

In this document, the following conventions are used:

- A typewriter font is used for what you see on the screen.
- A **bold typewriter font** is used to represent the actual characters you type at the keyboard.
- A *slanted typewriter font* is used for items such as filenames which you should replace with particular instances.
- A **bold font** is used to indicate named keys on the keyboard, for example, **Esc** and **Enter**, represent the keys marked Esc and Enter, respectively.
- A **bold font** is also used where a technical term or command name is used in the text.
- Where two keys are separated by a forward slash (as in **Ctrl/B**, for example), press and hold down the first key (**Ctrl**), tap the second (**B**), and then release the first key.

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1 Getting started

This section describes the workspace in Flash

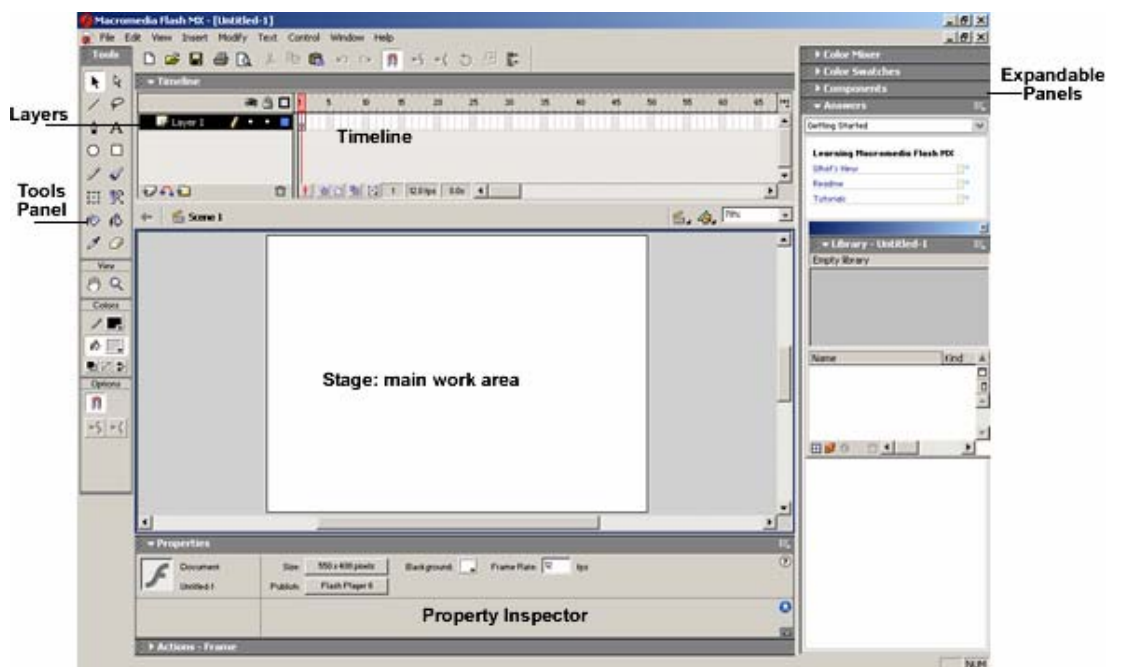
- 1 Click on the **Start** button, then select **Programs | Web Tools | Macromedia MX | Flash MX**.

A **Welcome Window** will open, read this information if you wish then close the window. Users of previous versions of Flash will notice that the workspace has changed with MX. The greatest change is the ability to dock, stack and “roll-up” tool palettes, rather than working with a large number of floating panels. It is worth taking a few minutes to explore the workspace.

You may wish to try out the online tutorial from **Help | Tutorials | Introduction to Flash MX**

- 2 Click **File | New**

Flash creates a new blank document with a number of expandable panels as shown below:



Timeline records every frame, layer and scene that makes up your movie content over its timespan.

Tools Panel provides you with tools to paint, draw and to add shapes and colours/fills to create your animation.

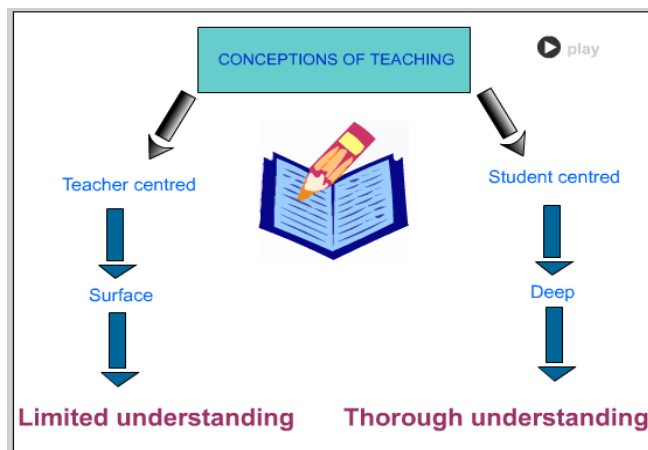
Layers are an essential feature as Flash allows you to organise objects on the Stage in layers. Layers keep objects separated from each other. This feature is covered in greater detail in Section 5.

Stage displays the content of the frame currently selected in the **Timeline**. You create a movie by arranging a series of graphics on the **Stage**.

Property Inspector displays any relevant properties for objects added to the stage such as text and frames and enables you to edit the parameters of these objects.

Note the **panels** available to the right of the main work area. These panels provide access to the functionality of Flash. Each panel can be expanded and collapsed by clicking the arrow next to each panels title.

The following image shows the completed movie that you are going to create, you may need to refer to this when creating your objects:



2 Creating and Editing Objects


In this section you will create and manipulate some simple objects.

2.1 Adding and modifying a shape



- 1 From the **Tools** panel select the **Rectangle tool**. Position your mouse pointer over the Stage, left click with the mouse and drag to draw a vertical rectangle about 3cm tall and 1cm wide (this is going to form the stem of an arrow).



- 2 From the **Tools** panel select the **Pencil tool**. From the **Options** section (in the **Tools** panel) click the **Pencil Mode** icon and ensure this is set to **Straighten**. 

- 3 On the **Stage** beneath your rectangle draw 3 straight lines to form an approximation of a triangle so that you are creating a vertical arrow that points downwards.

With the pencil set in the Straighten mode Flash will attempt to recognise the shape you have drawn and 'perfect' it.

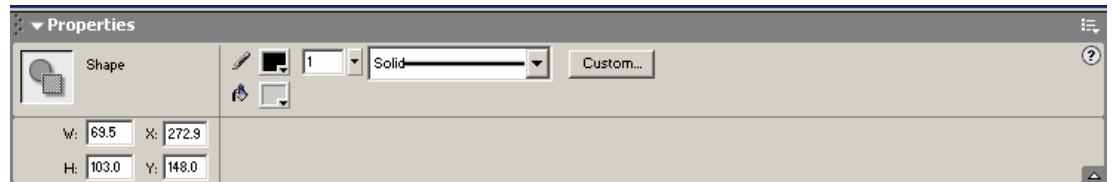


- 4 From the **Tools panel** select the **Arrow Tool**

Note: The arrow tool is used to select any object, or areas of an object, in order to modify it.

- 5 Using the mouse drag an area to surround your shapes to highlight them

Notice that information about these shapes has now appeared in the **Property Inspector**



- 6 Click on the **Fill Colour** icon in the **Property Inspector** and choose a colour for your shapes 



- 7 From the Options section at the bottom of the Tools panel ensure the Lock Fill icon is de-selected (i.e. doesn't appear pressed down — by default it should be deselected).

- 8 From the **Tools** panel select the **Arrow Tool**.

- 9 Hover your mouse pointer over the line forming the straight edge of your triangle. But do not click on the line yet.

Notice that a curved line appears at the bottom of the pointer. This indicates that the line can be modified to a curve.

- 10 Click and hold your mouse pointer on the line, away from the corners. Now drag the line downwards to create a curve to change the straight edge of your triangle.
- 11 You have now completed your arrow.

2.2 Adding text

You are going to create a background on which to add your text on the **Stage** where you have created your arrow.

- 1 Click on the **Rectangle** tool and on the **Stage** drag to draw a box about 2cm tall and 6cm wide that fills just under half the width of the **Stage**.



- 2 From the **Tools** panel select the **Paint Bucket Tool**.

Note: By default Flash remembers the last fill settings that you used and automatically fills in your next object with this fill. It is therefore often the case that you will need to change this.

- 3 From the **Colors** section of the **Tools** panel click on the **Fill Color** icon and choose a colour. Click on the rectangle on the **Stage** to apply the fill colour.



- 4 From the **Tools** panel select the **Text tool**. Click on the rectangle you have just created.



- 5 In the **Property Inspector** in the **Font** field select **Arial**; change the height size of the text to **14** and from the colour picker select a colour for your text.

- 6 In the rectangle type:

CONCEPTIONS OF TEACHING

- 7 From the **Tools** panel select the **Arrow** tool. Hover your mouse over the text until it turns to a cross and position your text centrally on the rectangle by dragging it with the mouse.
- 8 Click **File | Save As** and save your file as **courseobjects.fla** in the **public_html** folder on your J:\drive.
- 9 Keep the file **courseobjects.fla** open for the next section.

3 Symbols and Instances

Symbols provide a means of reusing content in a Flash movie without an increase in file size that would delay delivery via the web. Symbols are stored within the **Library** of your Flash project and each instance of a symbol is a link to the **Library**. Instances can be edited to have characteristics that are different to that of the master symbol. However, if the master symbol is edited all instances are updated. It is good practice to make nearly every item within a Flash movie a symbol.

3.1 Converting existing objects to symbols

- 1 From the **Window** menu select **Library** (if it is not already open).

This will open a **Library** floating panel which you can move to any part of the screen by clicking and dragging on the blue area. The **Library** lists all the imported images and symbols used in an authoring file.

- 2 From the **Tools** panel select the **Arrow Tool**.

You now need to select the arrow you created earlier on the **Stage**

- 3 Left click with the mouse and drag to select an area that completely surrounds the arrow. This will select the arrow so you are able to modify the shape.
- 4 Select the **Insert** menu and click **Convert to Symbol**.

A **Convert to Symbol** window will open.

- 5 In the **Name** field type:
arrow
- 6 Next to **Behavior** select **Graphic** and click **OK**.
- 7 You are going to repeat this process to convert the text you created earlier to a symbol. Use the arrow tool to drag and select an area that includes the text and rectangle, and then follow steps 3 –6 above, naming the symbol **text** in the **Convert to Symbol** window.

You will notice that your symbols have appeared in the **Library**. Clicking on the item displays it in the upper pane of the **Library** window.

- 8 Click **File| Save** to save your changes.

3.2 Creating an object as a symbol

You are going to create another arrow to be used later when developing your animation. But this time you will create the arrow as a symbol instead of converting it as you did in Section 3.1.

- 1 Select **Insert | New symbol**
- 2 In the **Name** field in the **Create New Symbol** window type
arrow2
- 3 Select the **Graphic** option and click **OK**.

Flash switches to **Symbol Editing Mode**. Notice that the name of your symbol has appeared below the **Timeline**. Here you can modify your symbol just as you might normally do in the **Movie Editor**.

- 4 Click on the **Rectangle** tool and draw another rectangle similar to the previous one but about half the size. Using the **Pencil** tool draw a triangle to form the remaining part of your arrow.
- 5 Click on the **Paint bucket** tool and choose a fill colour. Click on your shapes to apply the colour.
- 6 You can modify your arrow as before if you wish.
- 7 When you have completed your symbol and are ready to return to the **Movie Editor** select **Edit | Edit Document** to exit **Symbol Editing Mode**.

If you click on **arrow2** in the **Library** window a preview of the symbol will now appear in the upper pane.

4 Working with Images

Although Flash is not designed to offer the full functionality of an image editing application, it does have a range of basic features for importing and modifying images.

- 1 With the file **courseobjects.fla** open select **File | Import**. Browse to the **T:**drive and choose **ITS/Flash/book.gif**
- 2 With the **Arrow Tool** selected, move the image to a clear space on the **Stage**.

Notice that the image has also appeared as a **Library** item (book.gif). This allows the image to be reused multiple times without increasing movie file size.

You will notice that in its present form you are not able to modify the image. Therefore, we need to convert the image into an editable vector graphic.

- 3 Click **Modify | Trace Bitmap**.
- 4 In the **Trace Bitmap** dialog box set the following values:
Color Threshold: 50
Minimum Area: 10
Curve Fit: Normal
Corner Threshold: Normal.
- 5 Click **OK** to create vector graphics from your bitmap.
- 6 From the **Tools** panel select the **Arrow** tool and then click on a clear area of the **Stage** to de-select your converted bitmap. Notice that in the conversion some of the detail has been lost.

Note: The **Trace Bitmap** settings control how much of the original detail of the image is retained in the converted object. As more detail is included the size of the exported movie will increase.

Your bitmap image has now been converted to vector objects that can be manipulated by Flash.



- 7 Click on one of the pages of the book, from the **Tools** panel select the **Paint Bucket Tool**.
- 8 From the **Colors** section of the **Tools** panel click on the **Fill Color** icon and choose a colour different to the existing page colour.
- 9 Click on the page of the book to apply the selected fill colour.

You might want to repeat this to change the colour of the other page or try changing the colour of different areas of the pencil.

- 10 With the **Arrow Tool** selected use the mouse to drag an area around the book image to select it.
- 11 Click **Insert | Convert to symbol**, name the symbol **bookpencil** and select the **graphic** option.
- 12 Click **OK**. This will add the item to the **Library**.
- 13 Click **File | Save**.

The **Library** now contains the original book image (**book.gif**) that you imported and the book image that you have converted to a vector graphic and now modified.

5 Layers

Layers are like transparent sheets of acetate stacked on top of each other. When you create a new Flash movie, it contains one layer. You can add more layers to organize the artwork, animation, and other elements in your movie. The number of layers you create is only limited by the computer's memory. You can hide layers, lock layers, or display layer contents as outlines. You can also change the order of layers.

You are going to work with a file that has already been created for you so that you can experiment with using layers. You do not need to close the **courseobject fla** file as Flash can work with several files at once.

- 1 Click **File | Open**. Browse to the **T:\drive** and choose **ITS/Flash/layers fla**
- 2 In the **Timeline** click on the top layer labelled **plants1**.

Notice that several objects are selected on the **Stage**. These are the objects that are contained on this layer. Each of the other layers contains a different set of objects. Separating objects in this way allows them to be manipulated independently.

- 3 Click on the words **plants1** and drag the layer to a position below the underlying layer **fish1**. The plants on this layer are now positioned below the fish.
- 4 Experiment with changing the stacking order of the other layers.

Notice the three icons above the top layer.





- 5 Click on the **eye** icon.

The contents of each layer should now be hidden. Hidden layers are indicated in the **Timeline** by a cross.

- 6 Click on each of the crosses in turn to reveal the content on each layer.
- 7 Click on a dot in one of the layers in the column headed by the **padlock** icon.

This locks the selected layer to prevent it being modified.

- 8 Click on the **square** icon next to the padlock. Viewing layers as outlines can be useful when editing authoring files with content on multiple layers.
- 9 Reset the layer view options so that all layers are visible, in solid form and unlocked.

- 10 In the **Timeline** click on the uppermost layer in the **Timeline**. Click the **Insert Layer** button. This will add a new layer above all other layers. As there are 5 layers already, by default this layer will be labelled *Layer 6*. 
- 11 **Right-click** on the label *Layer 6* and select **Properties**.
- 12 In the **Name** field type:
MyLayer
- 13 Click **OK** to rename the layer.
- 14 In the **Timeline** ensure the layer **MyLayer** is selected and use the **Oval Tool** to create a large filled circle on the **Stage**.
- 15  In the **Timeline** again ensure the layer **MyLayer** is selected and then click **Delete Layer** button.

The contents of this layer will now be removed from your file. Separating content using layers therefore makes it easier to edit and delete.

Note: Most actions that you perform in Flash can be undone by selecting **Edit | Undo**. An important exception is the **Delete Layer** action, which cannot be undone.

- 16 Close this file (you do not have to save the changes).

6 Animating in Flash

Animation is the process of creating the effect of movement or change over time. Animation can be the movement of an item from one place to another, or it can be a change of colour or shape over a period of time. There are two basic methods of Flash animation; frame by frame and tweened animation:

Frame by Frame animation is achieved by changing the individual contents of each of any number of successive frames. It is the most basic form of animation and is useful for complex animations that require subtle changes.

Tweened animation is achieved by defining the contents of the start and end points of an animation. Flash then creates the frames “between” the start and end points. This process is called “tweening”.

6.1 Using Layers in animation

You are going to start building your animation using the skills you acquired in the previous sections. You will create a flow diagram, which will use text, arrows and an image. You are first going to create several layers in which to build the animation.

- 1 With the **courseobjects.fla** file still open click the **File** menu and select **New**.

Note: You will notice that the **Library** window from the file **courseobjects.fla** is still visible along with a new library window for the new file you have created. You are going to use the items in the **Library** from the **courseobjects.fla** file in this animation.

- 2 In the **Timeline** right-click on the layer named *Layer1* and select **Properties**. In the **Name** field type:

book image

- 3 Click **OK** to rename the layer.



- 4 Click the **Insert Layer** button. This will add a new layer above the **book image** layer. By default this layer will be labelled *Layer 2*.

- 5 Right-click on the label *Layer 2* and select **Properties**. In the **Name** field type:

text

- 6 Click **OK** to rename the layer.
- 7 Repeat steps 4 - 6 above and create 2 more layers called **arrows1** and **arrows2**.

6.2 Tweened animation

- 1 In the **Timeline** click on **frame 1** in the layer **book image** and from the **Library** drag an instance of the **bookpencil** symbol (i.e. the book that you made changes to) onto the middle of the **Stage**.

You will notice a black dot has now appeared in the **Timeline** in the **book image** layer, this is a **Keyframe**. This is a frame in which something changes in a layer of the **Timeline**. The first frame of every layer is by default, a **Keyframe**.

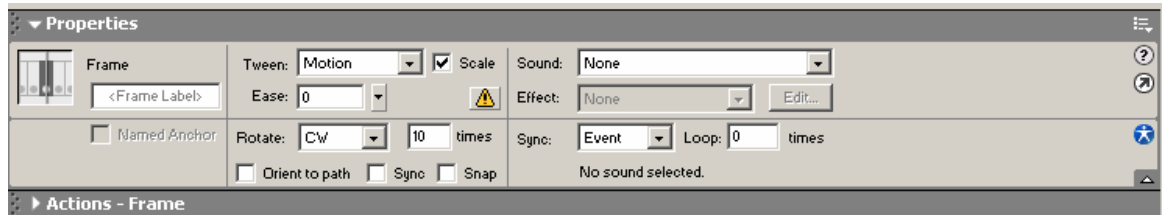
- 2 Click on **frame 15** in the layer **book image** and click **Insert | Keyframe**. A dot will again appear in **frame 15**.

You are now going to change the instance so that it changes in form between frames 1 and 15.

- 3 Click back in **frame 1**.

Notice also, information has appeared in the **Property Inspector** showing you have selected a frame.

- 4 In the **Property Inspector** set **Tween** to **Motion** from the drop down menu
- 5 Set **Rotate** to **CW** (clockwise) and set number of rotations to **10**.



Notice that in the **Timeline** an arrow with a blue background has appeared between Keyframes 1 and 15. Flash has created the **Motion Tween** between these two frames.

- 6 Click again in **frame 1** in the **book image** layer and click **Modify | Transform | Scale**.
- 7 Click on the bottom right hand corner of the image where handles have appeared to scale it. And drag this corner inwards to reduce the size of your image down to about a quarter of its original size, making sure it still stays in the centre of the **Stage**.
- 8 Click **Control | Play** to watch the animation of your book.
- 9 Click on **frame 65** in the layer **book image** and click **Insert | Keyframe**. This marks the end of the animation.
- 10 Click **File | Save As** and save your file as **coursemovie.fla** in the **public_html** folder on your **J:\drive**.

6.3 Frame by frame animation

- 1 In the **Timeline** click on **frame 1** in the layer **text** and from the **Library** drag an instance of the **text** image to the top of the **Stage**. You will notice a black dot has now appeared in the **Timeline**, a **Keyframe** has automatically been created.
- 2 Click **Window | Align** (if it is not already visible).
- 3 Under the heading **To Stage**: select the **Align/Distribute to Stage** icon.
- 4 Under the heading **Align** select the second icon along — **Align horizontal center**. This will centre your text at the top of the **Stage**.
- 5 Click on **frame 65** in the layer **text** and click **Insert | Frame**.

This marks the end of the animation. A **Frame** is used in this instance as the title is to stay static throughout the animation. **Frames** inherit the content of the previous **Keyframe**, therefore between **frames 1** and **65** the instance will not change.

- 6 Click on **frame 15** in the layer **arrows1** and click **Insert | Keyframe**.

- 7 Drag an instance of **arrow** (the first arrow you created) from the **Library** to the left of the text on the **Stage**.

You now need to rotate the arrow so that the flow diagram can develop on different sides of the **Stage**. Look at the screenshot in Section 1 (page 2), which shows the completed movie. This will show you where to place the arrow.

- 8 Click **Modify | Transform | Rotate and Skew**. Handles will appear around your arrow.
- 9 Click on one of the handles and move your arrow so it is facing in a South West direction —pointing away from the text.
- 10 Using the **Arrow** Tool move the arrow to the exact position you want on the **Stage**.

You now need to create a matching arrow on the opposite side of the **Stage**, but this time it will face in a South East direction.

- 11 Click on **frame 15**
- 12 Drag an instance of the **arrow** from the **Library** to the right of the text on the **Stage**.
- 13 Click on the arrow using the **Arrow** tool
- 14 Click in **frame 15** and follow steps 8 - 10 above, rotating the arrow so that is facing in a South East direction.
- 15 In the **Timeline** click on **frame 25** in the layer **arrows1** and click **Insert | Keyframe**.

To give the effect of the arrows fading in – from being almost transparent to fully visible — you can set various levels of visibility at various stages along the **Timeline**, using frame by frame animation.

- 16 Click in **frame 15** in the layer **arrows1**.
- 17 Click on one of the highlighted arrows on the stage
- 18 In the **Property Inspector**, next to **Color**, select **Alpha** from the drop down menu and change the percentage to **10%**.

You will notice that the arrows on your **Stage** have now faded away.

- 19 Insert two more **Keyframes** between **frames 15** and **25**, increasing the alpha value at each frame. E.g. alpha values of **30%** in **frame 18** and **70%** in **frame 22**. After inserting these **Keyframes** ensure that you click one of the highlighted arrows on the **Stage** in order to be able to change the **alpha %** in the **Property Inspector**.

Inserting key frames in this way will generate a series of discrete jumps in alpha values between **Key frames 15** and **25** giving the impression of a smooth transition.

- 20 Finally click on **frame 65** in the layer **arrows1** and click **Insert | Frame**.
- 21 Click in **frame 1** in the **Timeline** on any layer and click **Control | Play** to watch your animation.
- 22 Click **File | Save**.

6.4 Applying effects to text

- 1 In the layer **text** click in **frame 27** and click **Insert | Keyframe**.
- 2 Select the **Text Tool** from the **Tools panel** and click on the **Stage** beneath the arrow to the left.
- 3 In the **Property Inspector** in the **Font** field select **Arial**, change the height size of the text to **16** and from the colour picker select a colour for your text.
- 4 Click on the **Paragraph** tab next to **Characters** and centre the text.
- 5 In the text box type:
Teacher Centred
- 6 Repeat steps 2 - 5 but insert the text beneath the arrow to the right and type:
Student Centred
- 7 Position your text in the correct place beneath the arrows using the **Arrow Tool**.
- 8 Click on **frame 28** in the **arrows2** layer and insert a **Keyframe**.
- 9 Drag 2 instances of **arrow2** from the **Library** onto the **Stage** beneath the text you have just introduced at each side.
- 10 Click on the first instance of the arrow and click **Modify | Transform | Scale**.
- 11 Click on one of the handles and drag the image inwards until it is about half of it's original size.
- 12 Repeat steps 10 - 11 for the instance of the arrow on the right of the **Stage**, so that both arrows have been scaled to the same size.
- 13 In the **Timeline** click on **frame 38** in the layer **arrows2** and click **Insert | Keyframe**.
- 14 Click back in **frame 28** in the **arrows2** layer and click on one of the highlighted arrows on the **Stage**.
- 15 In the **Property Inspector** select **Alpha** from the drop down menu and change the percentage to **10%**.

- 16 Insert two more key frames between **frames 28** and **38** increasing the alpha value at each frame. E.g. alpha values of **30%** at **Keyframe 32** and **70%** at **Keyframe 35**.
- 17 Finally click on **frame 65** in the layer **arrows2** and click **Insert | Frame**.

You are now going to continue to develop the flow diagram by adding some further text as you have done previously.

- 18 Create two more layers and call them **text2** and **text3** (see Section 6.1 to remind yourself how to do this)
- 19 In the layer **text2** click in **frame 40** and click **Insert | Keyframe**.
- 20 Follow steps steps 2 - 7 above to add the next bit of text to your animation. Type:

Surface
(under the left arrow)

Deep
(under the right arrow)

- 21 Now add two more of **arrows2** at either side beneath this text by inserting a **Keyframe** in the **arrows1** layer at **frame 45** and two more lots of text by inserting a **Keyframe** in the **text3** layer at **frame 50** to complete your flow diagram.
The text will be:

Limited understanding
(under the left arrow)

Thorough understanding
(under the right arrow)

6.5 Emphasising text

To draw attention to important parts of the animation you can manipulate instances to emphasise them, through such things as increasing the size and depth of colour of text.

- 1 In the **text3** layer right-click and insert a **Keyframe** in **frame 60**.
- 2 Click on the highlighted text on the **Stage**
- 3 In the **Property Inspector** change the **text height size** to **22**, make the text bold and change the colour to give a marked contrast.

If the text extends off the **Stage** after enlarging it, click on the text and move it inwards.

- 4 Click in **frame 1** in the **Timeline** on any layer and click **Control | Play** to watch your animation.
- 5 Click **File | Save**.

7 Adding Buttons

You can assign an action to a button or a movie clip to make an action execute when the user clicks a button or rolls the pointer over it, or when the movie clip loads or reaches a certain frame.

- 1 In the **Timeline** click on the uppermost layer in the **Timeline** and click the **Insert Layer** button.
- 2 **Right-click** on the Layer and select **Properties**.
- 3 In the **Name** field delete the text **Layer 7** and type:
button
- 4 Click **OK** to rename the layer.

7.1 Assigning actions in the Timeline

First we need to assign an action to the **button** layer in the **Timeline** to ensure that the movie stops where we want it to, before adding the button, which can be clicked to play the movie again.

- 5 Click in **frame 65** of the **button layer** and insert a **Keyframe**.
- 6 Click the arrow next to the **Actions** frame at the bottom of your screen to expand the window
- 7 From the **Actions** list select **Actions | Movie Control**
- 8 Double click on **Stop**.

Collapse the actions frame by clicking the arrow again. You will notice that the symbol 'a' has appeared in **frame 65** in the timeline showing that an action has been added.

7.2 Assigning actions to buttons

You could create your own button but Flash has a series of buttons held in a Library, which you can use.

- 9 Click **Window | Common libraries | Buttons**.

This will open a new **Library** window containing a number of files and folders created by Macromedia.

- 10 In this **Library** window scroll down to find the folder named **Circle buttons**.
- 11 Double click on the folder icon to expand it and click on the **Play** button.
- 12 Click in **frame 65** in the **button layer** and drag the button from the **Library** window onto the top right hand corner of the **Stage**.
- 13 Ensure that the **Play** button on the **Stage** is selected. Expand the **Actions panel** and select **Actions | Movie Control**

- 14 Double click on **Play**
- 15 Collapse the **Actions panel** using the arrow

This will ensure that your movie stops at the same point as the animation finishes. When the user clicks the play button the movie will play again. Without this the animation would return to the beginning and play again automatically.

Incorporating action buttons gives control to the person watching your animations.

- 16 Click **Control | Test movie** to watch your animation and to test clicking your button.
- 17 Click **File | Save**.

8 Testing Flash Movies

This section provides you with information that you may or may not use but it demonstrates that full functionality of your movie can be tested from within the authoring environment if you want to do this.

- 1 Click **Control | Test Movie**.

This will show you what your published file will look like in a browser.

You can also produce information about how your movie will be delivered via the web.

- 2 Click **View | Bandwidth profiler**.

You should now see a graph displayed at the top of the movie.

The left-hand pane of the profiler displays 3 sections:

- **Movie:** indicating the dimensions, frame rate, file size, duration and preload.
- **Settings:** displaying the current selected connection speed.
- **State:** showing the current frame playing and its byte requirements.

The larger right-hand pane of the profiler shows the **Timeline** header and graph. The lower red line beneath the **Timeline** header indicates whether a given frame streams in real-time with the current modem speed specified in the **Control** panel.

For 28.8 Kbps modem, any frame above 200 bytes may cause delays in streaming for a 12 fps movie.

- 3 From the **Debug** menu select the option **14.4 (1.2 KB/s)**. This will re-draw the performance graph to show how the movie is delivered over a slow modem.
- 4 Click **View | Show Streaming**.

This will display each element of your movie in the order that it will be loaded when delivered over the web. This can be used to ensure that critical components of your movie are loaded before they are required.

- 5 In the **View** menu ensure that the option **Frame By Frame Graph** is selected.
- 6 In the **Bandwidth Profiler** graph click on any of the bars.

Notice that the information displayed in the left-hand pane of the **Bandwidth Profiler** changes to reflect the selected frame. This can be used to identify frames that may cause a delay in movie delivery over the web.

You can also assess a movie's performance at different qualities.

- 7 From the **View** menu select **Quality | Low**. Your movie will now be shown as it would appear when published at the lowest quality.

Lowering the movie quality should result in faster delivery and this will be reflected in the **Bandwidth Profiler**.

- 8 Click **File | Close** to return to the Flash authoring environment.

9 Publishing Flash Movies

Flash movies can be published in a variety of formats suitable for web delivery. In this section you will configure the settings used to publish a Flash movie; you will also use the Publish Preview function to view how your published movies will appear to users.

In Flash ensure that your authoring file **coursemovie.fl**a is open.

- 1 Click **File | Publish Settings**. In the pop-up window select the tab **Formats** and notice that your Flash project can be published in a range of formats. The standard formats are **Flash (movie)** and **HTML**.
- 2 Ensure that the checkboxes next to these options under the **Format** tab are ticked and then click **OK**.
- 3 From the **File** menu select **Publish Preview**.

Notice that the formats available to preview reflect those selected you chose in the Publish Settings window, allowing you to preview how your published movie will look in a variety of formats.

- 4 Click **File / Publish Settings** and click the tab labelled **HTML**.

When these options are changed Flash will generate the modified HTML to create an appropriate web page.

- 5 Next to **Template** select **Flash Only**, next to **Dimensions** select **800** for the width and **400** for the height.

- 6 In the section **Playback** clear the checkbox next to the option **Loop** and click **OK**.
- 7 Click **File | Publish** to publish your movie in the selected formats.
- 8 Save the file **coursemovie.fl** and close it.

Note that you will now also have a **coursemovie.html** file and **coursemovie.swf** file that will have been saved to your **J:\public_html** folder.

10 Further information

Further information about Flash and other Macromedia products for creating WWW pages can be seen at <http://www.macromedia.com>. It is also a useful place to look if you have specific questions as FAQs are posted here. You may also want to refer to the following books:

Dreamweaver MX Bible (2002), Joseph W. Lowery, Hungry Minds, ISBN: 0764549316

Sams Teach Yourself Macromedia Dreamweaver MX in 24 Hours (2002), Bruce B. Sams, ISBN: 067232346X